300-91W10 Emergency Medical Technician-Basic
Mid Term Written Examination
Answers with Rationale (August 2001)

1. a. first responder

   First responders such as the fire department and law enforcement are often times the first personnel on scene and provide initial life-saving treatment and stabilization until the ambulance arrives. EMT's, including the Intermediate and Paramedic levels are generally with the responding ambulance and do not commonly serve as first responders.

2. a. radius

   Recalling the anatomical position (palms facing forward), the radius is the lateral bone of the forearm since it is away from the body's midline. The ulna is the medial bone of the forearm. Neither the clavicle nor the humerus are bones of the forearm.

3. d. liver

   Organs included in the upper right abdominal quadrant include the liver and gallbladder. The stomach and spleen are located in the upper left quadrant and the appendix is located in the lower right quadrant.

4. b. a conscious and alert female with a gunshot wound to the abdomen

   Gunshot wounds, multiple long bone fractures and significant falls (>10 feet in the child and >20 feet in the adult) are considered to be significant mechanisms of injury. In addition to the significant mechanism of injury, the fact that the gunshot wound was to the abdomen, this patient requires a rapid trauma assessment.

5. d. a blocked airway

   Snoring is a common airway sound that indicates partial obstruction/blockage of the airway by the tongue. Asthma produces a wheezing (whistling) sound. Fluid in the airway will produce a rattling sound (called rhonchi) and swelling of the airway will produce stridorous (high pitched) sounds, generally heard upon inhalation.

6. c. performing a head-tilt chin lift to open the airway

   Snoring respiration's indicate partial airway blockage by the tongue. The most effective method to correct this is to perform a head-tilt chin lift maneuver to open the airway. If the patient has been injured, the jaw thrust maneuver is utilized to avoid manipulating the neck.

7. b. decreased blood flow to the skin

Cool, clammy skin, which is an early sign of shock indicates that blood is being shunted away from the skin to the more vital organs of the body such as the heart, lungs, liver, and brain. This is an attempt of the body to compensate for shock in order to maintain blood pressure.

8. a. hepatitis

Hepatitis is an inflammation of the liver. There are several different types of hepatitis however, they all present with similar symptoms which are a yellowish color of the skin (jaundice), upper right quadrant pain and dark urine.

9. c. an EMT-Basic transfers care to a first responder

Abandonment is defined as stopping the care of a patient while the patient still requires further care or by transferring patient care to someone of lesser training than yourself. In this question, the first responder has a lower level of training than the EMT-Basic.

10. c. call for additional ambulances

Once it is realized that there are more patients than you can effectively manage, the EMT should immediately call for additional resources. This is a critical phase of the scene size -up. Gathering of patients, triage, and treatment are all carried out after you have performed the scene size -up.

11. c. applying oxygen with the appropriate device

Initial management, as in the initial assessment of a patient includes the administration of oxygen if appropriate. All problems with airway, breathing, and circulation should be addressed before proceeding with a detailed exam. In this question, it is of no consequence that the patient takes minipress, elavil, and aspirin or that she has had cardiac surgery. The question merely asks how you would initially manage a patient with weakness.

12. a. a nasopharyngeal airway

a nasopharyngeal airway is generally tolerated better by semiconscious patients or those with a gag reflex. If the patient is unconscious without a gag reflex, the oropharyngeal airway should be used. A pocket mask and oxygen cylinder are both required pieces of equipment when assisting the ventilations of a patient.

13. a. immediate care of critical patients

Components of the scene size -up are determining scene safety, evaluating the mechanism of injury, and requesting additional assistance. Patient triage and treatme nt should not begin until an adequate scene size -up has been performed.

14. c. turn the patient on their side

In order to prevent immediate aspiration of gastric contents, a vomiting patient should first be turned to the side, then suction should be applied.

15. b. brachial

The American Heart Association (AHA) recommends assessing the brachial pulse in any patient under the age of 1 year. The carotid pulse should be assessed in patients over 1 year of age.

16. d. broken teeth may have been aspirated

A patient with massive facial trauma is in immediate danger of airway compromise, such as broken teeth and blood. This is an immediate concern when assessing the airway of a patient with facial trauma.

17. b. an unconscious trauma patient with fluid drainage from the ears

Any patient with fluid drainage from the ears or nose, which indicates a skull fracture should not have a nasopharyngeal airway inserted. In these patients, an oropharyngeal airway is the adjunct of choice, provided that a gag reflex is absent and the patient is unconscious.

18. b. open the airway using the jaw thrust

After determining unresponsiveness, the airway should be opened. Since this is a trauma patient, the jaw thrust maneuver should be used to open the airway.

19. c. mechanism of injury

When determining whether or not to perform a rapid trauma assessment, the mechanism of injury is the most reliable indicator. A significant mechanism of injury suggests multiple trauma which can rapidly be located and managed with a rapid trauma assessment.

20. c. evaluating the respiratory rate and rise and fall of the chest

A visual examination of the chest to determine the presence of adequate chest rise and fall as well as evaluating the quality of the respiratory rate will provide the most information about the patient's respiratory status. Cyanosis is a late sign of hypoxia.

21. c. carefully observing the scene prior to stepping out of the ambulance

A visual check of the scene should be made by the EMT prior to exiting the response vehicle on any call. Information from the dispatcher and bystanders is often insufficient to truly determine the safety of the scene. Use your own eyes, not someone else's.

22. d. gently palpate the painful area last

When examining the abdominal area, you should always ask the patient where the pain is located, then gently palpate that area last. If you palpate the painful area first, the patient's abdominal muscles will tense from the pain and the rest of the exam will be unreliable.

23. d. to ensure your own safety

Your primary concern when dealing with any patient is to ensure that you are safe. After your own safety has been ensured, then you can begin patient care.

24. b. HIV/AIDS

Diseases such as HIV/AIDS and hepatitis are transmitted via blood or bodily fluids. Tuberculosis is transmitted by the droplet route (sneezing or coughing). Chickenpox and german measles are transmitted via direct contact with infected lesions.

25. c. having a cumulative stress reaction

A cumulative stress reaction (also called burnout) results from repeated exposure to stressful events (such as a busy shift) and often presents with irritability and inability to effectively function.

26. a. a drug overdose

Cases that usually require reporting to the authorities include child/elderly abuse, gunshot wounds, animal bites, and an injury that is incurred during the commission of a felony. Drug overdose usually does not require reporting by the EMT.

27. b. scope of practice

The limit of what tasks and responsibilities the EMT has is referred to as the scope of practice. The duty to act is defined as having an obligation to respond when on duty and in your jurisdiction. The Medical Practice Act defines the minimum qualifications of those who may engage in EMS and establishes a means of certification.

28. d. begin basic life support and call medical control

In cases where a "Do Not Resuscitate" (DNR) order or living will is not present, basic life support should be initiated immediately and the physician medical director should be consulted. He or she will make the final determination as to whether or not the resuscitation will proceed.

29. c. manubrium

The manubrium is the upper portion of the sternum, just above the Angle of Louis. The xiphoid is the distal end of the sternum. The axilla is the armpit area.

30. a. a child's tongue is proportionately smaller than that of an adult

Major anatomic differences between the child and the adult are that the child's tongue is proportionately larger, the head is proportionately larger, and the child's cricoid (portion of the trachea) is less rigid than the adult.

31. d. carry oxygen to the body tissues

The main function of the red blood cell (erythrocyte) is to carry oxygen to the cells and tissues of the body. White blood cells (leukocytes) protect the body from infection. Platelets (thrombocytes) aid in the clotting of the blood.

32. a. dermis

The dermis is the deepest layer of the skin. It is rich in blood vessels and nerves. The epidermis is the outermost layer of the skin. Dead skin cells are constantly being shed from the epidermis. The subcutaneous layer contains mainly fatty tissue.

33. c. the liver

The liver is a solid organ that is highly vascular. It contains approximately 40% of the human blood volume at any given time. Because of this, it tends to bleed profusely when injured. Liver hemorrhage is a frequent cause of intra-abdominal bleeding.

34. b. the spleen

The spleen is located within the upper left abdominal quadrant. Abdominal trauma is very common injury pattern when an automobile strikes a child. The liver is contained within the upper right quadrant of the abdomen.

35. b. keep your back in a locked-in position

Proper lifting and moving techniques include keeping your back in a locked-in position. The lumbar region, when locked in should be in a naturally curved-in position. When lifting, you should always keep the weight of the object you are carrying as close to your body as possible.

36. c. severe chest pain

Drowning, airway obstruction, and severe chest injury pose an immediate threat to the airway and ventilation and therefore are highly likely to result in respiratory arrest. Chest pain in itself is a symptom and does not necessarily pose an immediate threat to the airway.

37. d. a bag-valve mask

Inadequate breathing, characterized as a fast or slow rate, or poor quality should be assisted with a bag-valve mask. A patient with adequate breathing would be treated with a non-rebreather mask or a nasal cannula if the non-rebreather is not tolerated.

38. b. stabilization of the head is mandatory

Simultaneous stabilization of the trauma patient's head is required to avoid further injury and to prevent c-spine compromise. Not all trauma patients will require the insertion of an oral airway. The head-tilt is contraindicated in the trauma patient. Ventilations should be assisted when the patient's respirations are inadequate.

39. c. broken teeth and bleeding within the mouth

Any finding that poses a threat to the patency of the airway is a significant finding, whether the patient is conscious or not. Airway problems must be managed as soon as they are discovered.

40. a. the gallbladder

The gallbladder is not an endocrine organ. It concentrates and stores bile that is produced in the liver. The thyroid, pancreas, and pituitary are endocrine glands. The thyroid regulates the metabolic rate, the pancreas produces insulin and the pituitary is considered to be the master gland of the body, controlling all other endocrine glands. The pituitary gland is located at the base of the brain.

41. c. the presence of any scene hazards

When responding to any incident, the safety of the scene must be assessed prior to all else. Once it is determined that the scene is safe for entry, triage and patient care can begin.

42. c. assess the rate and quality of the patient's pulse

In the initial assessment of any patient, the rate and quality of the pulse would be assessed as part of the ABC's. Vital signs, pupils, and patient history are typically obtained after it is determined that the patient does not have any life-threatening injuries/illnesses.

43. c. a patient with moderate pain in the abdominal region

A patient with <u>severe</u> pain is a high priority condition. Chest pain with a systolic blood pressure less than 100 mmHg, altered mental status and severe hemorrhage are also priority conditions.

44. c. capillary refill is a reliable indicator of perfusion in the adult

Capillary refill is not a reliable indicator of perfusion in the adult, as peripheral circulation tends to decrease with age. It is much more reliable in the child. In the adult, pulse quality, skin condition and LOC are better indicators of perfusion.

45. b. lack of oxygen in the blood

A lack of oxygen in the blood will cause the skin to turn a purplish-gray color known as cyanosis.

46. d. narcotic drugs will cause the pupils to constrict

Narcotics, such as heroin, morphine and darvon will cause pupillary constriction. Barbiturate drugs will cause the pupils to dilate, as will severe blood loss. Normally, the pupils will constrict when light is shone into them.

47. c. consider the possibility of spinal injury

When a child/infant falls, they tend to fall headfirst. This results in possible spinal injury. You should never separate a child from the parent if the child is stable. Accusations of child abuse toward the parents can be a source of legal trouble for the EMT.

48. c. focus on the area(s) of injury

Since the initial assessment revealed no life threats, an appropriate next step for the EMT would be to perform a focused exam on the area(s) of the patient's body that are injured.

49. d. is a potential trauma patient

Any time a patient is found and there are no witnesses or bystanders to provide you with information about the patient, it is safest to assume that the patient may be a trauma patient (the patient might have fallen to the ground).

50. a. the patient is a critical trauma patient

A detailed physical exam is typically not performed on responsive medical patients or trauma patients without a significant mechanism of injury or life-threatening injuries. Critical trauma patients should have a detailed physical exam performed in the back of the ambulance while en route to a medical facility.

51. b. reassess the patient every 5 minutes

All critical trauma patients should be continually monitored and reassessed every 5 minutes. The correct positioning for the patient is with the legs elevated 12" (shock position). The written patient report should be started as soon as the EMT is free from patient care duties.

52. b. 33

The spinal column has a total of 33 vertebrae. 7 cervical, 12 thoracic, 5 lumbar, 5 sacral and 4 coccygeal.

53. c. heart attack or stroke

Deposits of cholesterol within the arterial wall (atherosclerosis) increase a person's risk of a heart attack or stroke. Thin, dry wrinkled skin is part of the normal process of aging as is the risk of falls. Migraine headaches and atherosclerosis are not related to one another.

54. a. history of present illness

In this radio report, there is no information provided that elaborates on the chief complaint, such as "OPQRST". This is called the history of present illness and is an important piece of information to include in a radio report. By providing the HPI, the receiving physician can get a better idea as to what may be wrong with the patient.

55. c. an allergic reaction

Due to the fact that the child is experiencing difficulty breathing as well as a body rash, an allergic reaction is most likely the cause. Neither asthma nor heat related emergencies present with a bodily rash. A poison oak reaction is generally localized, characterized by intense itching, but usually does not cause respiratory distress.

56. a. epinephrine

Another name for adrenalin is epinephrine. Activated charcoal is often referred to as liqui-char, another name for dextrose is glucose and norepinephrine is also referred to as levophed.

57. c. hypotension

Because of its vasodilation effects on the blood vessel, nitroglycerin can cause significant hypotension. For this reason, the blood pressure should be monitored frequently when administering this medication to a patient. Headache is a common side effect of the drug. Nausea is rarely a side effect of nitroglycerin and chest pain is the reason the drug is given.

58. c. attach the automated defibrillator

Because of the importance of early defibrillation, the AED should be attached to the patient as soon as it is determined that cardiac arrest exists. ALS support should be called for early however, this should not precede defibrillation. Approximately 75-80% of patients that present with cardiac arrest are in ventricular fibrillation (V-Fib). Early defibrillation is the most important therapy for this ventricular fibrillation.

59. d. none of these

The EMT-B may not administer any medication to a patient in the field without the permission of a physician. The only exception to this is oxygen.

60. c. early defibrillation

Studies clearly prove that early defibrillation has the greatest potential for successfully resuscitating the cardiac arrest patient. Approximately 75-80% of these patients present with V-Fib and defibrillation, if early enough can significantly increase the survival rate.

61. d. angina pectoris

Because this patient's pain began with exertion and was relieved by sublingual nitroglycerin, angina pectoris is the most likely cause of his chest pain. Remember, any patient with chest pain suggestive of a cardiac nature should be assumed to be having an acute MI until proven otherwise. Aortic aneurysms generally present with a tearing type of pain in the chest or abdomen that radiates straight through to the back. The pain of an aneurysm may also originate in the back.

62. c. a low blood pressure

Hypotension is a significant finding and suggests hypoperfusion (shock). A body rash and hives are present with allergic reactions however, when the blood pressure falls, anaphylactic shock exists.

63. b. congestive heart failure

Difficulty breathing that worsens when lying flat (orthopnea) is a classic finding in congestive heart failure. This indicates the presence of a significant amount of fluid in the lungs. Chronic emphysema (COPD) is caused by damage to the alveolar wall and generally does not result in a buildup of fluid in the lungs. CHF patients often have a history of hypertension.

64. b. headache

Headache is not a common complaint among patient with a cardiac problem. Chest pain, dyspnea and a feeling of impending doom are classic findings in a patient with cardiac compromise.

65. d. epigastrium

The region of the abdomen just above the umbilicus but below the xiphoid process is called the epigastrium. The flanks are located laterally over the area of the kidneys. The retroperitoneum is the area posterior to the true abdomen and contains organs such as the kidneys and pancreas.

66. d. the patient's level of consciousness

A patient's level of consciousness represents the general perfusion status of the patient. Blood pressure, peripheral pulses and the status of the pupils are all good indicators of perfusion however, all of these work to maintain an adequate level of consciousness.

67. b. an increase in blood pressure

Because of the vasodilation effects of nitroglycerin, a decrease in blood pressure is common. Through the relaxation of smooth muscle (vasodilation), nitroglycerin decreases the workload of the heart and thereby relieves the pain associated with angina.

68. c. oxygen with a nasal cannula at 4 liters/minute

This patient is clearly in respiratory failure and needs 100% oxygen. Most COPD patients will not stop breathing when given high flow oxygen therefore, it should never be withheld. While initiating a rapid transport to the hospital, you should be prepared for the possibility of respiratory arrest in this patient.

69. d. a slow heart rate

Bradycardia is not a common finding in a diabetic patient. Tachycardia is common in both hypoglycemia (insulin shock) and hyperglycemia (diabetic coma). Cold, clammy skin is associated with insulin shock (hypoglycemia). Combativeness can be associated with any diabetic emergency but is more common in insulin shock.

70. b. warm, dry skin

Because of the dehydration associated with hyperglycemia (diabetic ketoacidosis), the skin is usually warm and dry. Cool, clammy skin generally indicates hypoglycemia (insulin shock). Hypoglycemia is defined as a low blood sugar. Chest pain is usually not present with a diabetic emergency.

71. a. two seizures in a row without regaining consciousness

Status epilepticus is defined as a seizure that lasts between 5-10 minutes or two or more seizures in a row without a period of consciousness in between. It should be noted that the most common cause of status epilepticus in the adult in failure to take prescribed anticonvulsant medications.

72. a. airway closure

An immediate and serious risk of airway burns is swelling and closure of the airway. Infection is concern in the long-term. Any problem with the airway is obviously immediately life-threatening.

73. b. depression of the central nervous system

Excess amounts of ethyl alcohol (beer, whiskey, vodka) have a depressant effect on the central nervous system which leads to depression of breathing, hypotension, bradycardia, a decrease in reflexes and a decreased ability of the person to remember.

74. c. a man who lost his job and a significant relationship

The loss of a job and a significant relationship are two very common reasons why people resort to suicide. This patient has both problems.

75. c. supine or on his side

This patient is displaying signs and symptoms of decompression sickness. The recommended position for this patient is supine (on his back) or on his side (recumbent).

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